



# PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

To: SCOTT ASMUS  
MAINE & ASMUS  
PO BOX 3445  
NASHUA NH 03061-3445

**RECEIVED**

APR 27 2001

TO 3600 MAIL ROOM

RECEIVED

MAY - 1 2001

**PCT**  
PCT 2800 MAIL ROOM

## NOTIFICATION OF TRANSMITTAL OF THE INTERNATIONAL SEARCH REPORT OR THE DECLARATION

(PCT Rule 44.1)

<p>Applicant's or agent's file reference OSPD91-PCT</p> <p>International application No. PCT/US01/00752</p> <p>Applicant GSI LUMONICS INC</p>		<p>Date of Mailing (day/month/year) <b>10 APR 2001</b></p> <p>FOR FURTHER ACTION    See paragraphs 1 and 4 below</p> <p>International filing date (day/month/year) <b>10 JANUARY 2001</b></p>
---	--	---

1.  The applicant is hereby notified that the international search report has been established and is transmitted herewith.

**Filing of amendments and statement under Article 19:**

The applicant is entitled, if he so wishes, to amend the claims of the international application (see Rule 46):

**When?** The time limit for filing such amendments is normally 2 months from the date of transmittal of the international search report; however, for more details, see the notes on the accompanying sheet.

**Where?** Directly to the International Bureau of WIPO  
34, chemin des Colombettes  
1211 Geneva 20, Switzerland  
Facsimile No.: (41-22) 740.14.35

**For more detailed instructions**, see the notes on the accompanying sheet.

2.  The applicant is hereby notified that no international search report will be established and that the declaration under Article 17(2)(a) to that effect is transmitted herewith.

3.  **With regard to the protest against payment of (an) additional fee(s) under Rule 40.2, the applicant is notified that:**

- the protest together with the decision thereon has been transmitted to the International Bureau together with the applicant's request to forward the texts of both the protest and the decision thereon to the designated Offices.
- no decision has been made yet on the protest; the applicant will be notified as soon as a decision is made.

4. **Further action(s):** The applicant is reminded of the following:

Shortly after **18 months** from the priority date, the international application will be published by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the international application, or of the priority claim, must reach the International Bureau as provided in rules 90 bis 1 and 90 bis 3, respectively, before the completion of the technical preparations for international publication.

Within **19 months** from the priority date, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase until 30 months from the priority date (in some Offices even later).

Within **20 months** from the priority date, the applicant must perform the prescribed acts for entry into the national phase before all designated Offices which have not been elected in the demand or in a later election within 19 months from the priority date or could not be elected because they are not bound by Chapter II.

Name and mailing address of the ISA/US Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231 Facsimile No. (703) 305-3230	Authorized officer RAYMOND BARRERA Telephone No. (703) 308-0956 <i>Raymond Barrera</i>
---	---

## PATENT COOPERATION TREATY

## PCT

## INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference OSPD91-PCT	<b>FOR FURTHER ACTION</b>	see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.
International application No. PCT/US01/00752	International filing date ( <i>day/month/year</i> ) 10 JANUARY 2001	(Earliest) Priority Date ( <i>day/month/year</i> ) 11 JANUARY 2000
Applicant GSI LUMONICS INC		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 3 sheets.

It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report
  - a. With regard to the language, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
 

the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).
  - b. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international search was carried out on the basis of the sequence listing:
 

contained in the international application in written form.

filed together with the international application in computer readable form.

furnished subsequently to this Authority in written form.

furnished subsequently to this Authority in computer readable form.

the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the

the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.
2.  Certain claims were found unsearchable (See Box I).
3.  Unity of invention is lacking (See Box II).
4. With regard to the title,
 

the text is approved as submitted by the applicant.

the text has been established by this Authority to read as follows:
5. With regard to the abstract,
 

the text is approved as submitted by the applicant.

the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.
6. The figure of the drawings to be published with the abstract is Figure No. 1

as suggested by the applicant.

because the applicant failed to suggest a figure.

because this figure better characterizes the invention.

None of the figures.

**INTERNATIONAL SEARCH REPORT**

International application No.

PCT/US01/00752

**Box III TEXT OF THE ABSTRACT (Continuation of item 5 of the first sheet)**

The technical features mentioned in the abstract do not include a reference sign between parentheses (PCT Rule 8.1(d)).

**NEW ABSTRACT**

A high precision torque motor, including a partial rotation drive suitable for use in a galvanometer scanner, where the rotor (2) is supported within the stator (1) and housing assembly on all ceramic ball bearings (5, 6), including inner and outer races and bearing balls. The ceramic ball bearing assemblies and all structural support elements have substantially equal coefficients of expansion through the use of matched expansion, nickel-iron alloy for the rotor shaft, stator, housing and other structural components which contact, locate, and support the inner and outer bearing races. The nonconductive bearings permit exclusion of any grounding conductor strap as between the rotor shaft and the housing.

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/US01/00752

**A. CLASSIFICATION OF SUBJECT MATTER**

IPC(7) :H01F 7/08, 7/14; H02K 33/00, 35/00, 5/16; G01R 1/00  
 US CL :335/272; 310/36, 90; 324/154PB

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 335/272; 310/36, 90; 324/154PB

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

NONE

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

USPTO APS EAST, WEST

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5,380,112 A (SCHICKTANZ et al) 10 January 1995 (10.01.1995), see the entire document.	1-4

 Further documents are listed in the continuation of Box C. See patent family annex.

* Special categories of cited documents:	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A" document defining the general state of the art which is not considered to be of particular relevance	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"E" earlier document published on or after the international filing date	"Y"	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&"	document member of the same patent family
"O" document referring to an oral disclosure, use, exhibition or other means		
"P" document published prior to the international filing date but later than the priority date claimed		

Date of the actual completion of the international search

08 MARCH 2001

Date of mailing of the international search report

10 APR 2001

Name and mailing address of the ISA/US  
Commissioner of Patents and Trademarks  
Box PCT  
Washington, D.C. 20231

Facsimile No. (703) 305-3230

Authorized officer

RAYMOND BARRERA

Telephone No. (703) 308-0956

*Rene Parker*

## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US99/04353

## A. CLASSIFICATION OF SUBJECT MATTER

IPC(6) :F01D 25/16; F16C 33/34; B23P 15/00; D01H 7/20

US CL :Please See Extra Sheet.

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 415/231, 174.2, 170.1, 229, 230; 384/335, 492, 569, 537, 907.1; 57/133; 29/898.062

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

APS TEXT Search

searchterms: inner race, hard coating, oxide, mounting, ceramic

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5,197,808 A (TAKATA) 30 March 1993, col. 4, lines 34-68, col. 5, lines 9-16, col. 6, lines 22-51.	1-10, 15-22
Y	US 3,061,386 A (DIX et al.) 30 October 1962, col. 1, line 54 - col. 2, line 6, col. 3, line 34 - col. 4, line 54, col. 6, line 49 - col. 7, line 11.	1-10, 15-22
Y	US 4,623,297 A (BEAM Jr.) 18 November 1986, col. 1, line 50 - col. 2, line 22, col. 2, lines 44-57.	7-10, 15-22
Y	US 4,155,605 A (GLASER) 22 March 1979, col. 1, line 65 - col. 2, line 10.	5, 7-9, 16-19, 22

 Further documents are listed in the continuation of Box C.

See patent family annex.

* Special categories of cited documents:	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
* "A" document defining the general state of the art which is not considered to be of particular relevance	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
* "B" earlier document published on or after the international filing date	"Y"	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
* "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&"	document member of the same patent family
* "O" document referring to an oral disclosure, use, exhibition or other means		
* "P" document published prior to the international filing date but later than the priority date claimed		

Date of the actual completion of the international search

21 MAY 1999

Date of mailing of the international search report

15 JUN 1999

Name and mailing address of the ISA/US  
Commissioner of Patents and Trademarks  
Box PCT  
Washington, D.C. 20231

Facsimile No. (703) 305-3230

Authorized officer

Edward Look *Diane Smith for*

Telephone No. (703) 308-0861

## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US99/04353

## C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 4,276,947 A (HEBEL) 07 July 1981, col. 1, line 59 - col. 2, line 39, col. 4, lines 31-54.	4, 17
Y	US 5,033,877 A (BOWEN) 23 July 1991, col. 1, lines 57-62, col. 2, lines 1-14.	21
A	US 4,448,016 A (THALMANN) 15 March 1984, col. 5, line 62 - col. 6, line 27.	23-27
A, P	US 5,743,016 A (MANNE et al. ) 28 April 1998, col. 3, line 47 - col. 4, line 68.	11-14
A	US 4,272,216 A (OSBURN) 09 June 1981, col. 5, lines 36-57, col. 6, lines 36-57.	23-27

**INTERNATIONAL SEARCH REPORT**

International application No.  
PCT/US99/04353

**A. CLASSIFICATION OF SUBJECT MATTER:**

US CL :

415/231, 174.2, 170.1, 229, 230; 384/535, 492, 569, 537, 907.1; 57/133; 29/898.062